

## 510(k) Summary of Safety and Effectiveness

*This summary of 510(k) safety and effectiveness information is being submitted in accordance with the requirements of SMDA 1990 and 21 CFR 807.92.*

### Introduction

According to the requirements of 21 CFR 807.92, the following information provides sufficient detail to understand the basis for a determination of substantial equivalence.

### Submitter name, Address, and Contact

March 24, 2006

Lin-Zhi International, Inc.  
687 North Pastoria Avenue  
Sunnyvale, CA 94085  
Phone: (408) 732-3856  
Fax: (408) 732-3849

Contact: Marie Lin, Ph.D.  
President, R&D Director

### Device Name and Classification

Classification Name: The Opiate test system has been placed in Class II by the Bureau of Medical Devices.  
Classification Number: DJG (21 CFR 862.3650)  
Panel: 91 Toxicology

The "Drug Specific, Calibrators" has been placed in Class II by the Bureau of Medical Devices.  
Classification No.: DLJ, 21 CFR 862.3200  
Panel: 91 Toxicology

The "Single (Specified) Analyte Controls" has been placed in Class I by the Bureau of Medical Devices.  
Classification No.: LAS, 21 CFR 862.3280  
Panel: 91 Toxicology

Common Name: Opiate Oral Fluid Homogeneous Enzyme Immunoassays

Proprietary Name: None

## **Predicate Device(s)**

The LZI Opiate Oral Fluid Enzyme Immunoassay is substantially equivalent to the Opiates Intercept® Micro-plate EIA (K981341) manufactured by OraSure Technologies Inc. (formerly known as STC Technologies, Inc) for its general intended use.

## **Device Description**

LZI's Oral Fluid Opiate Enzyme Immunoassay is a ready-to-use, liquid reagent, homogeneous enzyme immunoassay. The assay uses specific antibodies that can detect Opiate in oral fluid with minimal cross-reactivity to various, common prescription drugs and abused drugs. The assay is based on competition between drug labeled with glucose-6-phosphate dehydrogenase (G6PDH) enzyme and free drug from the saliva sample for a fixed amount of specific antibody. In the absence of free drug from the saliva sample the specific antibody binds to the drug labeled G6PDH enzyme causing a decrease in enzyme activity. It is therefore the drug concentration is proportional to the enzyme activity. The G6PDH enzyme activity is determined spectrophotometrically at 340 nm by measuring its ability to convert nicotinamide adenine dinucleotide (NAD) to NADH.

## **Intended Use**

The Opiate Enzyme Immunoassays for Drugs of Abuse in Oral Fluid is a homogeneous enzyme immunoassay system to detect Opiate in human saliva with a cutoff of 30 ng/mL when testing oral fluid specimen collected with Salivette collector (manufactured by Sarstedt ) and diluted with 1 mL of buffer. The calibrators and controls of the analyte (Morphine) are prepared with oral fluid buffer so that it can be used to verify and validate the assay. The assay is intended for use in the qualitative determination for Opiate drugs. The assay is designed for professional use with a number of automated clinical chemistry analyzers.

*The Opiate Oral Fluid Enzyme Immunoassay is a homogeneous enzyme immunoassay system provides only a preliminary analytical test result. A more specific alternative chemical method must be used to obtain a confirmed analytical result. Gas chromatography/mass spectrometry (GC/MS) is the preferred confirmatory method. Clinical consideration and professional judgment should be applied to any drug-of-abuse test result, particularly when preliminary positive results are used.*

## **Comparison to Predicate Device**

The LZI Opiate Oral Fluid Homogeneous Enzyme Immunoassay, including calibrators and controls, is substantially equivalent to OraSure's Opiates Intercept® Micro-plate EIA in its intended use and in for the qualitative determination of opiates in human oral fluid.

<b>Device Characteristics</b>	<b>Subject Device (LZI Opiate Oral Fluid Homogeneous EIA)</b>	<b>Predicate Device (OraSure Opiate Intercept® Micro-plate EIA)</b>
<b>Intended Use</b>	<p>The LZI Opiate Oral Fluid Homogeneous EIA is a homogeneous enzyme immunoassay system to detect opiates in human saliva with a cutoff of 30 ng/mL when testing oral fluid specimen collected with Salivette collector (manufactured by Sarstedt) and diluted with 1 mL of buffer. The calibrators and controls of the analyte (Opiate) are prepared with oral fluid buffer so that it can be used to verify and validate the assay. The assay is intended for use in the qualitative determination for Opiate drugs.</p> <p><i>The Opiate Oral Fluid Enzyme Immunoassay is a homogeneous enzyme immunoassay system provides only a preliminary analytical test result. A more specific alternative chemical method must be used to obtain a confirmed analytical result. Gas chromatography/mass spectrometry (GC/MS) is the preferred confirmatory method. Clinical consideration and professional judgement should be applied to any drug-of-abuse test result, particularly when a preliminary, positive result is observed.</i></p>	<p>The OraSure Opiate Intercept® Micro-plate EIA is intended for use by clinical laboratories in the qualitative determination of opiates in oral fluid collected with Intercept® DOA Oral Specimen Collection Device using a 10 ng/mL cutoff. For <i>In Vitro</i> Diagnostic Use.</p> <p><i>The OraSure Opiate Intercept® Micro-plate EIA provides only a preliminary analytical test result. A more specific alternative chemical method should be used in order to obtain a confirmed analytical result. Gas chromatography/mass spectrometry (GC/MS) is the preferred confirmatory method. Clinical consideration and professional judgement should be applied to any drugs of abuse test result, particularly when a preliminary, positive result is observed.</i></p>
<b>Analyte</b>	Morphine	Morphine
<b>Matrix</b>	Saliva	Saliva
<b>Calibrators/ Controls Level</b>	5 levels including a negative	4 levels including a negative



## DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

Food and Drug Administration  
2098 Gaither Road  
Rockville MD 20850

APR 6 2006

Marie Lin, Ph.D.  
President  
Lin-Zhi International, Inc.  
687 North Pastoria Avenue  
Sunnyvale, CA 94085-2917

Re: k050988

Trade/Device Name: LZI Oral Fluid Opiate Enzyme Immunoassay,  
Calibrators and Controls

Regulation Number: 21 CFR§862.3650

Regulation Name: Opiate test system

Regulatory Class: Class II

Product Code: DJG, DLJ, LAS

Dated: March 24, 2006

Received: March 28, 2006

Dear Dr. Lin:

We have reviewed your Section 510(k) premarket notification of intent to market the device referenced above and have determined the device is substantially equivalent (for the indications for use stated in the enclosure) to legally marketed predicate devices marketed in interstate commerce prior to May 28, 1976, the enactment date of the Medical Device Amendments, or to devices that have been reclassified in accordance with the provisions of the Federal Food, Drug, and Cosmetic Act (Act) that do not require approval of a premarket approval application (PMA). You may, therefore, market the device, subject to the general controls provisions of the Act. The general controls provisions of the Act include requirements for annual registration, listing of devices, good manufacturing practice, labeling, and prohibitions against misbranding and adulteration.

If your device is classified (see above) into either class II (Special Controls) or class III (PMA), it may be subject to such additional controls. Existing major regulations affecting your device can be found in Title 21, Code of Federal Regulations (CFR), Parts 800 to 895. In addition, FDA may publish further announcements concerning your device in the Federal Register.

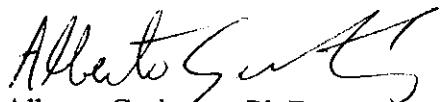
Please be advised that FDA's issuance of a substantial equivalence determination does not mean that FDA has made a determination that your device complies with other requirements of the Act or any Federal statutes and regulations administered by other Federal agencies. You must comply with all the Act's requirements, including, but not limited to: registration and listing (21 CFR Part 807); labeling (21 CFR Parts 801 and 809); and good manufacturing practice requirements as set forth in the quality systems (QS) regulation (21 CFR Part 820).

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This letter will allow you to begin marketing your device as described in your Section 510(k) premarket notification. The FDA finding of substantial equivalence of your device to a legally marketed predicate device results in a classification for your device and thus, permits your device to proceed to the market.

If you desire specific information about the application of labeling requirements to your device, or questions on the promotion and advertising of your device, please contact the Office of In Vitro Diagnostic Device Evaluation and Safety at (240) 276-0484. Also, please note the regulation entitled, "Misbranding by reference to premarket notification" (21CFR Part 807.97). You may obtain other general information on your responsibilities under the Act from the Division of Small Manufacturers, International and Consumer Assistance at its toll-free number (800) 638-2041 or (301) 443-6597 or at its Internet address <http://www.fda.gov/cdrh/industry/support/index.html>.

Sincerely yours,



Alberto Gutierrez, Ph.D.  
Director  
Division of Chemistry and Toxicology  
Office of In Vitro Diagnostic Device  
Evaluation and Safety  
Center for Devices and  
Radiological Health

Enclosure

## Indications for Use

510(k) Number (if known): k050988

Device Name: LZI Oral Fluid Opiate Enzyme Immunoassay, Calibrators and Controls.

Indications For Use:

The Opiate Oral Fluid Enzyme Immunoassay is a homogeneous enzyme immunoassay system to detect opiates in human saliva with a cutoff of 30 ng/mL when testing oral fluid specimen collected with Salivette collector (manufactured by Sarstedt) and diluted with 1 mL of buffer. The calibrators and controls of the analyte Morphine are prepared with oral fluid buffer so that it can be used to verify and validate the assay. The assay is intended for use in the qualitative determination for opiate drugs. The assay is designed for professional use with a number of automated clinical chemistry analyzers.

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Prescription Use ✓  
(Part 21 CFR 801 Subpart D)

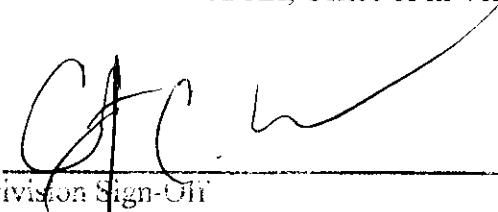
AND/OR

Over-The-Counter Use \_\_\_\_\_  
(21 CFR 801 Subpart C)

(PLEASE DO NOT WRITE BELOW THIS LINE-CONTINUE ON ANOTHER PAGE IF NEEDED)

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Concurrence of CDRH, Office of In Vitro Diagnostic Devices (OIVD)

  
Division Sign-Off

Office of In Vitro Diagnostic Device  
Evaluation and Safety

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